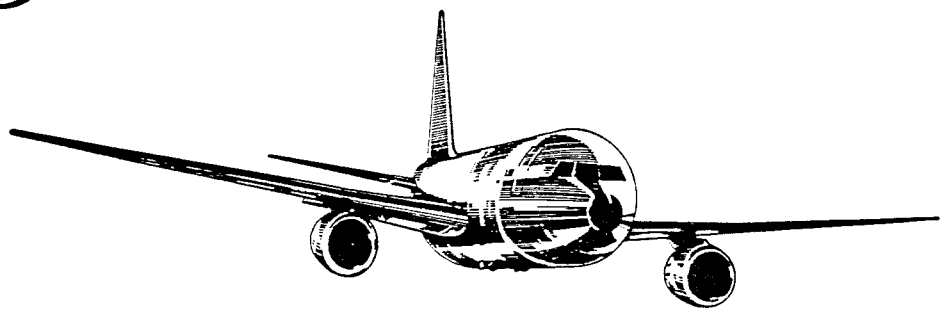
A310 FCOM BULLETIN



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SUBJECT : VOLCANIC ACTIVITY AWARENESS
VOLCANIC ASH ADVISORY
Subject extracted from former FCOM Bulletin N°08/1 – Subject N°24
No technical change from previous issue

Applicable to : All aircraft

1. REASON FOR ISSUE AND SCOPE

- The purpose of this FCOM Bulletin is to provide flight crews with background information, as well as operational guidelines, regarding VOLCANIC ACTIVITY AWARENESS and VOLCANIC ASH ADVISORY.

2. BACKGROUND INFORMATION

- Partial or total **engine power loss events** caused by **volcanic ash ingestion,** while infrequent, are major **flight safety concerns.**
- The lessons learnt from past experience and the recognition of the volcanic threat to aviation safety have lead AIRBUS to propose recommendations for establishing **an airline program** for **Volcanic Activity Awareness and Volcanic Ash advisory.**
- **Flight crew procedures** will not be addressed herein since AIRBUS recommendations for OPERATION IN AREAS CONTAMINATED BY VOLCANIC ASH are published, in all **Flight Crew Operating Manuals (FCOM),** in the consolidated INCLEMENT WEATHER OPERATION section (PROCEDURES AND TECHNIQUES Chapter).

3. RECOMMENDATIONS

- Airlines can play an instrumental role in the overall volcanic activity notification and volcanic ash advisory process.
- Airlines are key contributors at both ends of the airways volcano watch and warning loop as follows :

  * **Flight Crews**, in reporting to the ATC (by immediate radio transmission or/and by filling the ICAO Special Air Report – model VAR) any **observation** of volcanic activity or any **encounter** with a volcanic ash cloud.

  * **Flight Operations Departments,** in providing flight crews with :

    – **Pre-departure Area Briefing and Route Forecast,**

    – En-route up-dating information and advisories.

- The following communication links can be used to obtain timely up-dated information on the volcano eruptive activity :

  * **Volcanic Watch Function** :

    – The Volcanic Watch Function consists in **collecting, compilling, processing** and **up-dating detailed information** regarding the **active and pre-eruptive volcanoes** likely to affect the **company area of operation.**

    – This function can be assigned to the following departments, as applicable :

      . **Flight Operations,**
      or
      . **Flight Safety Office.**

    – So as to assess the volcanic threat for each company route the following information sources and communication links can be used :

      . **Air Information Service** (AIS), for active **NOTAM**'s.

. Meteorologial Watch Offices, Airport Offices and Regional Area Forecast Centers for active **SIGMET's**.

. On-site **Aviation Authorities** for additional information, such as data and maps related to the ash cloud observed and forecasted extension.

. **International organisations** such as **ICAO, IATA, IFALPA.**

. **Inter-airlines agreements.**

. **Company outside stations.**

– The Volcanic Watch Function **provides synthetized and up-dated information** to all operational departments (Flight Operations, Dispatch, Outside Stations,...) as follows :

. **Map**(s) of **active volcanoes** and **hazard areas,**

. Relevant **data** to be included in the **Pre-departure Area Briefing** and **Route Forecast.**

. **Specific procedures** for **en-route information up-dating** (e.g. HF company frequency, ACARS, en route FIS and ATC).

* **Flight crews pre-flight briefing and documentation** :

– All flight crews, operating a flight to/from/through an area likely to be affected by volcanic activity, should be provided with the following **Information** and **documents** :

. **On a systematic basis** :

◇ **Map(s) of active volcanoes and hazards area**

◇ **ICAO Special Air Report – Model VAR (refer to the sample appended hereafter).**

. **As dictated by current volcanic eruptive activity** :

◇ Last active **NOTAM**'s,

◇ Last active **SIGMET's**

◇ **Data** or **map(s)** reflecting the **observed ash cloud location, extension and/or trajectory forecast.**

◇ **Upper wind analysis** and **forecast** at selected flight levels.

◇ **Satellite images.**

* **En-route information up-dating** :

– The activity of an erupting volcano usually features **series of eruptions** sometimes separated by only a few hours. **En-route up-dating of the pre-flight briefing information** is therefore of paramount importance to **minimize the potential for volcanic ash cloud encounter.**

– The following communication links can be used to obtain timely up-dated information on the volcano eruptive activity :

. **Company FLIGHT WATCH frequency,**

. **ACARS,**

. **VOLMET** broadcasts (SIGMETs),

. **FLIGHT Information Service** (SIGMET's)

– **Detailed up-date** should be sollicitated and obtained regarding the following aspects :

. **Notification of new eruption(s),**

. **Location, height, extension and forecasted trajectory of volcanic ash cloud.**

. Notification of **airspace restrictions** (closure of air routes, activation of contingency routes).

* **Flight crew initial and recurrent training** :

– **So as to build-up a flight crew mind-set** regarding the **Volcanic Ash threat, volcanic ash awareness** should be addressed as part of the flight crew **initial** and **recurrent training,** as follows :

. **Understanding volcanic ash and volcanic ash clouds,** as any other **weather systems,** and their threat to jet aircraft operation,

. **Highlighting the published procedures** related to volcanic ash cloud **avoidance, recognition of encounter** and **encounter recovery.**

. Placing a particular attention, during the simulator session related to the BOTH ENGINE FLAME OUT procedure, to the **slow engine acceleration characteristics** to be expected upon engine restart after volcanic ash ingestion.

. Stressing the **Instrumental contribution of flight crew air reports** and the **use of the ICAO Special Air Report of volcanic activity (model VAR).**

4. CONCLUSION

- Although significant achievements have been realized, over the past decade, in setting up the **International Airways Volcano Watch** network and in casting the foundations of a **Worldwide Communications and Alert System,** the international effort is continuing for :
  - * **consolidating** and **extending** the Airways Volcano Watch network,
  - * **achieving** the Worldwide Communication and Alert System, to provide swift warnings/advisories to airlines and en-route flight crews.
- Although the Volcanic Ash Threat to Aviation Safety is a worldwide issue requiring **international actions, individual pro-active actions** of all concerned will bring a **vital contribution** to the overall effort.

MODEL VAR

Aircraft identification (as per item 7 of flight plan) ..... Pilot-in-command ..... Dep. from ..... Date ..... Time ..... UTC
Operator ..... Arr. at ..... Date ..... Time ..... UTC

	Addressee	
	AIREP SPECIAL	
Section 1	1 Aircraft identification	
	2 Position	
	3 Time	
	4 Flight level or altitude	
	5 VOLCANIC ACTIVITY OBSERVED AT	(position or beaning and distance from aircraft)
	6 Air temperature	
	7 Spot wind	
	8 Supplementary information (Brief description of activity including vertical and lateral extent mouvement, rate of growth, etc. as available)	
Section 2	The following information is not for transmission by RTF	
		TICK ☑ THE APPROPRIATE BOX
	9 Density of ash cloud	(a) wispy ☐ (b) moderate dense ☐ (c) very dense ☐
	10 Colour of ash cloud	(b) white ☐ (b) light grey ☐ (c) dark grey ☐ (c) black ☐
	11 Eruption	(a) continuous ☐ (b) intermittent ☐ (c) not visible ☐
	12 Position of activity	(a) summit ☐ (b) side ☐ (c) single ☐ (d) multiple ☐ (e) not observed ☐
	13 Other observed features of eruption	(a) lightning ☐ (b) glow ☐ (c) large rocks ☐ (d) ash fall out ☐ (e) mushrooming cloud ☐ (f) nil ☐
	14 Effect on aircraft	(a) communications ☐ (b) nav. systems ☐ (c) engines ☐ (d) pilot static ☐ (e) windscreen ☐ (f) windows ☐ (g) nil ☐
	15 Other effects	(a) turbulence ☐ (b) St. Elmos Fire ☐ (c) fumes ☐ (d) ash deposits ☐
	16 Other information	Add any information considered usefull

ICAO SPECIAL AIR REPORT OF VOLCANIC ACTIVITY

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